GrummanWorld

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More Power To Us

On May 18, Grumman's new supercomputer — a Cray X/MP-216 — began serving the company's scientific community. It is Grumman's third supercomputer.

The new Cray replaces the older X/MP-14 model. Grummanites who used the older supercomputer for engineering, aerodynamics and other scientific projects had used it to capacity. With the X/MP-216, they have a supercomputer that is twice as fast, has four times the memory, three times the disk capacity and three times the electronic disk capacity as the older model. *(Photo by Bob Settles)*

F-14A(PLUS) Tomcat Hooks Its First Carrier

A Grumman F-14A(PLUS) completed its second major stint aboard *U.S.S. Independence* during its carrier suitability trials. The plane returned to Pax River on Tuesday, May 17.

"The carrier suitability trials are the first time that the airplane and the carrier get together," says Hal Sheprow, Grumman's F-14 Flight Test manager.

In those trials the Navy evaluates the Tomcat's handling qualities during catapults, approaches and arrested landings, and verifies other performance and equipment against specifications.

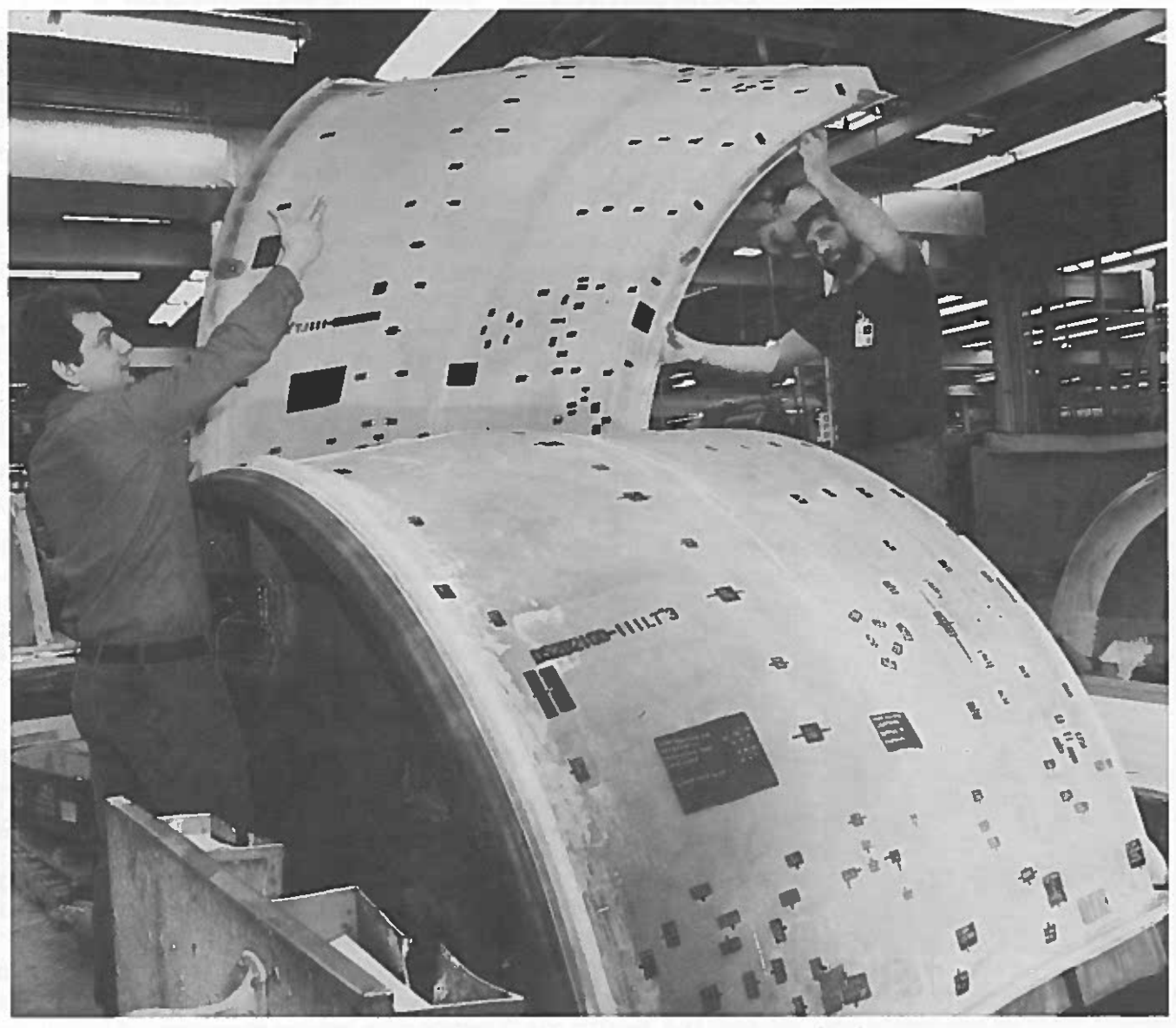
The aircraft was on the carrier for one week in April and a significant portion of the trials was completed. The *Independence*, which is based at the Philadelphia Navy Yard, returned to the waters off Norfolk, Virginia, during the week of May 9 to finish the Tomcat's trials.

Completion of the trials represents a significant milestone in the F-14A(PLUS) Tomcat's path toward fleet operations.

Before the carrier trials, the Tomcat had undergone landing tests at Lakehurst Naval Air Station in New Jersey. Those tests verified the Tomcat's ability to withstand the powerful yank on its airframe as the tailhook snares the arresting cable in a carrier landing.

The plane used in the carrier trials is the first production F-14A(PLUS) aircraft; it was delivered last November and is assigned to the Naval Air Test Center at Patuxent River, Maryland. The most recent deliveries of production and remanufactured F-14A(PLUS) Tomcats have been to the Navy's East Coast training squadron in Virginia.

Beginning this month, Grumman will deliver three F-14A(PLUS) aircraft, both production and remanufactured versions, each month. By the end of the program the Navy will have 70 of these Tomcats. That will be enough to give the Navy four operational squadrons.■



Just Checking. *In Hicksville, L.I., toolmakers Neal Dauscher (L) and Joe Martorana of the Plaster and Plastics Department check the fit of a fiberglass template. The template will be used in Milledgeville, Georgia, to build the composite transcowl under an Aerostructures subcontract. The transcowl creates reverse thrust for the General Electric CF6-80C2 engine that powers wide-body jets built by Boeing and Airbus Industries. (Photo by Bob Settles)*

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1988 Annual Luncheon Becomes Private Affair For Watch Recipients

It had to happen sooner or later. Grumman's annual 25-year luncheon has outgrown all the catering halls on Long Island.

For this reason, only Grummanites who celebrate their silver anniversary in 1988 will be invited to this year's luncheon. "It has nothing to do with cost containment," says Bob Bradshaw, Grumman vice president and secretary. "There is just no place big enough to hold all our retirees, employees celebrating five-year reunions, and the 25-year watch recipients. We've run out of room on Long Island."

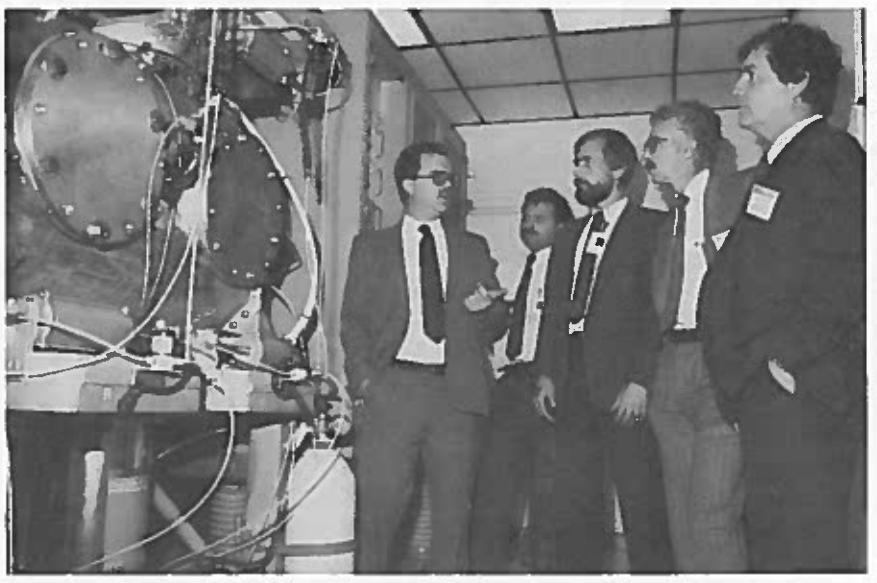
The largest catering hall on Long Island was Colonie Hill, but that was razed in 1986 to build condominiums. Last year, Grumman hosted the luncheon at the Crest Hollow Country Club in Jericho. Over 4,700 Grummanites and retirees were invited. Those who attended the 1987 luncheon know how crowded that affair was. Parking was a mess, and it was far from an intimate luncheon for the 583 Grummanites who received their 25-year watches.

This year, over 1,000 Grummanites celebrate their 25-year service anniversary. They will receive their watches on December 6 at the Crest Hollow Country Club.

"We investigated several other catering halls on Long Island — even the Nassau Coliseum. But that hall is in the basement of the Coliseum. We felt the concrete floors and walls were just not conducive to a 25-year celebration," says Bradshaw. "We had to face the fact: our group has just gotten too large."

For those retirees who use the 25-year luncheon as a reunion with old buddies, Bradshaw recommends the Grumman Retiree Club's Christmas party. It is held the day after the 25-year luncheon. This year's retiree gathering takes place on December 7.

Other upcoming retiree club functions are the June 29 luncheon at the Crest Hollow, a picnic at McKay Field on August 10, and a Mets game on August 31. Annual membership fee is $2. Call Recreation, (516) 575-2133, for more information.■

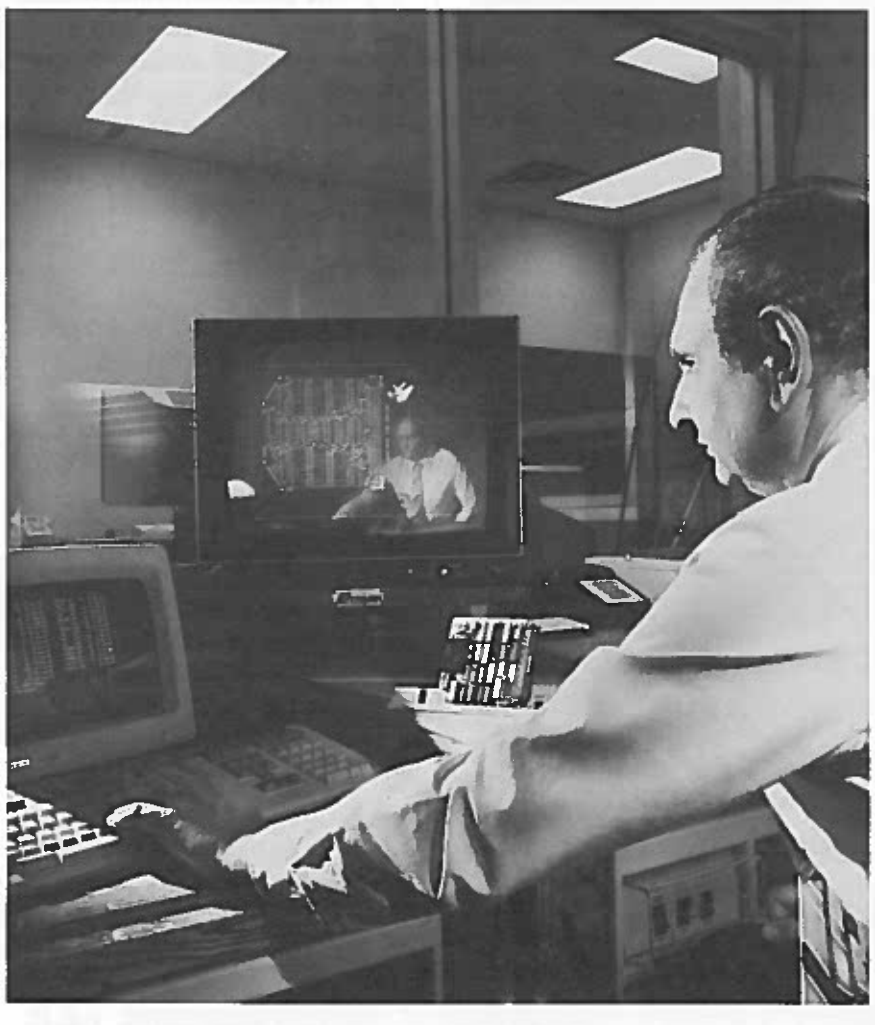


First-Hand Look. *Grummanites (L to R) Joe Sredniawski, Kourosh Saadatmand and John Erickson show one of Grumman's ion source test stands to Dr. Siegfried Hecker, head of the Los Alamos National Lab, and Dr. John Browne, the Lab's associate director for defense research and applications. (Photo by Bob Settles)*

National Lab Head Visits

On Thursday, May 12, Dr. Siegfried Hecker, director of the Los Alamos National Laboratories in New Mexico, received a first-hand look at Grumman Space Systems' work on neutral-particle-beam-related projects.

Grumman recently delivered a unique device called the Radio Frequency Quadrupole, which will be launched into space early next year to test the basic premises of neutral particle beam weaponry. Grumman has a small team working at Los Alamos on the Ground Test Accelerator. The accelerator is a research facility that will demonstrate neutral particle beam technology.



Thoughtful Design. *In the ElecSys Lab in Bethpage's Schwendler Development Center, engineer Sal Scarantino works on the Calay design automation system. The Digital Equipment terminal on Scarantino's left displays a list of logic connections on the printed wiring board shown, which goes in the Grumman developed Digital Entry Keyboard Interface. The lab aims to improve computer-aided design and manufacturing tools. (Photo by Bob Settles)*

Obituaries

Alvin Blake of Program Management F-14A, Bethpage, Aircraft Systems Division, died May 6 at the age of 42. He had been with the company since 1967 and resided at 589 Walnut St., Lindenhurst, N.Y.

Irwin E. Freireich of Program Management EW, Wellington, Ohio, Aircraft Systems Division, died April 29 at the age of 57. He had been with the company since 1969 and resided at 6319 67th Court, Riverdale, Maryland.

Retiree Obituaries

Howard J. Baldwin of 127 S. Hillside Ave., Nesconset, N.Y., died May 2, 1988. He retired in 1984.

Dominick P. Chico of 37 Quail Rd., Box 689, Rocky Point, N.Y., died May 3, 1988. He retired in 1984.

Alfred W. Engelhardt of 12500 Kensington La., Bowie, Maryland, died April 30, 1988. He retired in 1988.

Norman S. Farley of 881 S. Walnut St., Lindenhurst, N.Y., died April 26, 1988. He retired in 1985.

Vincenzo Giordano of 5428 Cambridge, Montclair, California, died April 12, 1988. He retired in 1969.

Neil A. Martin of RD 1, Box 324, Gilboa, N.Y., died April 1, 1988. He retired in 1970.

Lionel E. Osborne of 107 Brookvale Ave., West Babylon, N.Y., died May 5, 1988. He retired in 1972.

Eldridge Parker of 141 W. Lakeview Dr. NE, Milledgeville, Georgia, died March 31, 1988. He retired in 1984.

Frederick T. Richens of 10 Roosevelt St., Glen Head, N.Y., died April 29, 1988. He retired in 1967.

John Zwakhals of 27 Woodlot Rd., Ridge, N.Y., died May 7, 1988. He retired in 1970.

Personals

My family and I wish to thank my co-workers and ESO for their kindness and sympathy shown to us in the recent death of my mother. **Arthur Goehler**

I would like to thank you all for the beautiful retirement party and gifts I received. You all have a special place in my heart. **Marie Crescenti**

The family of Jean Flanigan wishes to extend to our Grumman family a sincere and humble thank you for the comfort that your sympathy, support, and understanding has brought to us during this most difficult time. **Arthur Flanigan**

I wish to thank all my friends, co-workers and ESO for their kind expression of well wishes during my illness. It really helps to know that your prayers are coming to help me get through this. God bless you all. **John Bachota**

My family and I wish to thank all my friends and colleagues for their kind expressions of sympathy upon the death of my father John J. Simonis. **R. J. Simonis**

The family of Margaret Schoendorfer wishes to thank our friends for their kind expressions of sympathy. These feelings of compassion helped us to overcome our deep sorrow. **Carl and Jean Schoendorfer**

My family and I, including my daughter Tina, would like to thank the people at Grumman for their kind expressions of sympathy during the recent loss of my mother. Your thoughtfulness is greatly appreciated. **Thomas Kennedy.**

My family and I sincerely wish to thank all my friends, co-workers and ESO for their concern and many kind expressions of sympathy and support during the recent loss of my wife. **Hank Foertsch**

Subcontracts: Profitable In More Ways Than One

MELVILLE, L.I. — From his office here, Aerostructures Division President Don Schlegel can look out on Long Island's busy Route 110 corridor.

A decade ago, many of the buildings along 110 weren't there. Since then, the offices and industrial parks have mushroomed — and so has Grumman's subcontracts business. Sales have shot up from about $40 million in 1979 to an estimated $200 million this year. With cumulative sales to date of $1.4 billion and a healthy $1.5 billion backlog into the early 1990s, Grumman has become a major force in the subcontract market.

Today, the Boeing 727, 747, 757, and 767 jetliners, the Fokker 100, and the McDonnell Douglas DC-8 and DC-10 all contain Grumman parts and assemblies. Those will soon be joined by the McDonnell Douglas MD-11 and the Airbus 300 and 310. In addition, half the business jets flying in the world today have Grumman-built thrust reversers and nacelles — the aerodynamic structures enclosing the jet engines. On the military side, Grumman is a subcontractor on the MX, Penguin, and Small Intercontinental Ballistic Missiles; the V-22 and C-17 aircraft; and has a major program modifying S-2's.

"In the late '70s, Grumman realized that the trend to subcontract major aerospace assemblies was growing," says Schlegel. "As a result, a dedicated organization was formed to capture a major share of this expanding business. It later became the Aerostructures Division. We've been extremely successful. In 1987, our sales went up 40 percent.

"But we're not just interested in sales — a project has to make sense to the company as a total business proposition," he adds. "We look at it in terms of return on investment, new technology gains, and efficient utilization of shop capacity."

Schlegel has a relaxed manner, but runs a tight ship. There are 350 people in Aerostructures, though close to 1,500 people throughout Grumman work on its programs. That support comes primarily from Aircraft Systems people in Bethpage; Glen Arm, Maryland; Milledgeville, Georgia; and Stuart, Florida.

The division's smallness makes for the kind of organization that can respond quickly to market twists and turns, which are characteristic of the subcontracts business.

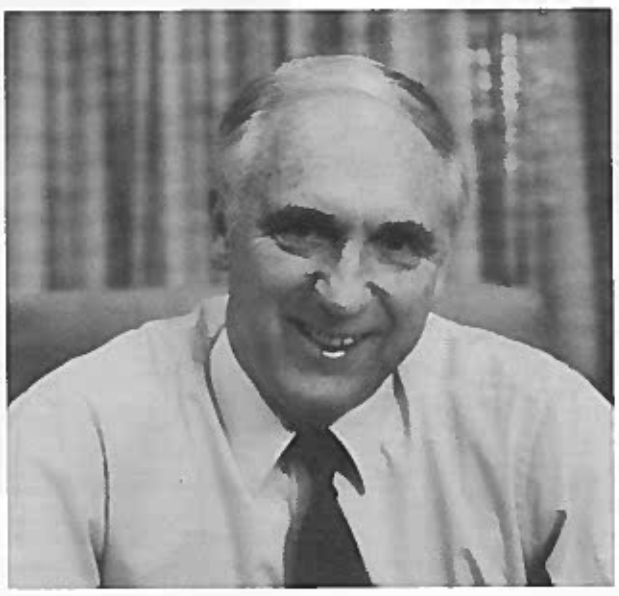
"You've got to have faith in people," says Schlegel. "You start with the premise that they all want to do their jobs the very best they can. It's your job as a manager to create the kind of environment that lets them do that. Set clear objectives and the good performers pop up like toast."

'We're not just interested in sales, but in return on investment, new technology gains, and efficient utilization of shop capacity.'

The division has set some ambitious goals. It aims to boost sales to $350 million a year by 1990. Schlegel breaks down the division's product line into three categories: structural components and assemblies, engine nacelles and thrust reversers, and modification kits. The annual market for such items is huge and has grown from about $3 billion in the early 1980s to a projected $6 billion in the early 1990s.

Even with the recent defense cuts, the market remains healthy. Schlegel says Aerostructures' workload, now 60 percent commercial, will become evenly divided between commercial and military later this year.

"Although military aircraft procurement is down, the requirements for innovative technology, cost competitiveness and a greater degree of risk sharing and investment on new programs are causing prime contractors to subcontract," says Schlegel. "In addition, subcontracts give a military program a broader constituency. More companies in wider geographic areas are involved."



Don Schlegel

The C-17 transport aircraft is a good example of the far-reaching nature of subcontracting. The prime C-17 contractor, McDonnell Douglas, issued subcontracts to 36 different companies. Among those was Grumman's $28 million contract to develop composite flight control surfaces. These include ailerons, inboard and outboard elevators, and forward and aft, upper and lower rudders. Follow-on contracts for production are expected to exceed $300 million.

Another example is the V-22 tilt-rotor Osprey aircraft, which will serve the Marines, Navy, and Air Force. Over 700 are expected to be produced.

'You start with the premise that people want to do their very best.'

Grumman, under subcontract to the Bell/Boeing team, designed an all-composite empennage (tail section) for the Osprey and built nine prototypes.

"This month, we will complete full scale development and deliver the last of these development articles," says Schlegel. "The first aircraft is scheduled to fly this summer. At the same time, we are preparing a production proposal for submittal this summer. We expect the production phase to be kicked off in 1989. Foreign military sales and future commercial applications are expected to add significantly to the number of aircraft that will be produced.

Aerostructures is working with Grumman International to reap some additional business from the S-2 Tracker, an antisubmarine aircraft built by Grumman in the '50s. For foreign customers, Aerostructures develops modification kits that include updated avionics, new weapons systems, and more powerful turboprop engines.

"We now have a $350 million contract to modify airplanes for one country, and the first flight of those aircraft is scheduled for this summer," says Schlegel. "We estimate there are another 200 S-2s out there that are candidates for upgrading.

"The same growth trends are occurring on the commercial side," says Schlegel. "Developing a new airplane or derivative takes a tremendous investment."

Since petroleum prices have stabilized, a newly developed commercial aircraft has to offer advantages other than fuel economy — including an affordable price tag, lower life cycle costs, and better reliability. For instance, new composite materials are stronger and more resistant to corrosion, resulting in longer life.

"The more sophisticated the vehicle, the more expensive to develop," says Schlegel. "That takes the resources and knowledge of more than one company."

Commercial projects have some advantages. "Contracts can be more innovative," says Schlegel. "If the customer's requirement is to meet a tight schedule, incentive provisions can be negotiated into the contract. As a supplier, if we deliver so many units a year early, we'll earn a premium.

Grumman's contract to produce the translating cowl part of the thrust reverser for General Electric CF6-80C2 engines is one such incentive contract. The transcowl makes use of a Grumman-developed, noise-deadening composite treatment — a technology that is applicable to virtually all turbofan engines. Grumman just completed its first transcowl, which will be used for static tests.

This acoustic know-how will give Grumman a jump on the Federal Aviation Administration's Stage 3 airport-noise regulations, which go into effect in the mid-1990s. These rules are much stricter than the current Stage 2 regulations.

'The more sophisticated the vehicle, the more expensive to develop. That takes the resources and knowledge of more than one company.'

In fact, some municipalities already require their airports to follow more stringent rules. Many airliners in service today exceed these noise limits. Grumman has been investigating the development of "hush kits," which could help existing aircraft that utilize older engines comply with the rules.

"As a result, aircraft fleet owners will be faced with three options," says Schlegel. "They can write off those planes, re-engine them with quieter engines, or purchase hush kits."

To achieve this year's business goals, the division will make about a half-dozen noteworthy bids, besides the V-22 production proposal. These include bids for additional business jet and commercial airline nacelles; composite components for the F-15; and S-2 modification kits.

There also may be a NASA request for proposals for a fourth Shuttle Trainer Aircraft early next year. This converted Gulfstream II enables astronauts to practice landing the Space Shuttle.

'We have expanded Grumman's reputation as a high-tech, high-quality supplier.'

Besides making money and honing the company's technical skills, subcontracts give Grumman a chance to work closely with other major aerospace companies. "A current customer could very well become our teammate on a prime program in the future," says Schlegel.

"We have expanded Grumman's reputation as a high-tech, high-quality supplier. We are now getting many unsolicited requests for proposals — whereas when we began, we had to chase them down, make more sales pitches.

"An executive of one corporation recently said that his company would like to emulate Grumman's success in the subcontract business," says Schlegel. "That's very flattering.

"But for us, it just means one more competitor — it is this constant challenge that requires everyone associated with subcontract programs to come up with innovative ideas to make our products as competitive as possible.

"What worked well for us yesterday won't be good enough for tomorrow," he says. "To win new subcontracts and then perform profitably demands that we stay sharp and continue to learn. That strengthens Grumman as a prime contractor, too."■

Milledgeville Slices Its Composite Costs

How many times have you wrapped a gift and then thrown away the unused portion of the roll of wrapping paper because there wasn't quite enough left to wrap another gift?

It may not seem like a big deal since wrapping paper costs only about $1.79 a roll. But substitute that with composite material costing $130 a yard. The scraps become quite a bit more valuable.

The Planning Department at Grumman's Milledgeville Operations has developed a new system to ensure that graphite and quartz material is used as efficiently as possible.

Most composite material, such as graphite used for the F-14 overwing fairing, and quartz for the A-6 radome, is cut with the Gerber Cutter—an automated shape-cutting table.

"Although the Gerber is computerized to cut the material in the most efficient way possible, there is always some left-over material, called drop-off," says Joni Daniels, manager of Manufacturing and Material Planning.

In the past, there was no system of reporting how much of the drop-off was being used. Now, after it is labeled with the part number and the material batch and roll numbers, it is set aside.

If a small part requires the same kind of material and needs to be hand cut, or a part has to be re-cut for some reason, the drop-off is used first before cutting another small piece of material off a large roll.

"In one month we estimated the cost of re-cuts to be about $3,000 for one program," says Daniels. "Under the new system, we were able to use $2,300 worth of drop-off material for the re-cuts."

Nancy Ruquet, a fiberglass lay-up mechanic, helped develop the new system. Information is recorded on a PC placed right next to the Gerber.

In addition to keeping track of the amount of graphite and quartz material used, the life span of the drop-off material is tracked. "Most people were afraid to use the drop-off in fear it might have already expired," says Ruquet. "Now there is a record of the date so they know exactly when the material can no longer be used."

Drop-off tracking is only one part of a new integrated planning system, which includes autonesting, workorder planning and material tracking on the shop floor. Hallie Ellerbee, a Gerber Planner, will be responsible for this task.

"Our biggest challenge has been getting the system in place and making everyone aware of the new procedure," says Daniels. "We've placed posters around listing the cost of the materials so people can see how expensive they really are. We've also formed a committee, including material planners and production personnel, to come up with more suggestions for saving money on material costs.

"So far, we've made a lot of progress," says Daniels. "Already we've seen a significant reduction in the amount of material purchased for the Boeing 757 Spoiler Program."■

Nothing Goes To Waste. *Nancy Ruquet, a fiberglass lay-up mechanic at Milledgeville Operations, helped to develop a new system to keep track of graphite and quartz composite material.*

Teaming Up. *Will Robinson of Multi-Wire Corporation in Hicksville was one of the speakers at a recent Partners in Education and Industry conference held in Grumman's Headquarters auditorium. Multi-Wire is teamed with the Hicksville school district. (Photo by Jim Wagner)*

Grumman Hosts Education And Industry Conference

Representatives from over 35 school districts and 40 Long Island businesses recently gathered in Grumman's Headquarters auditorium to discuss industry and education partnerships.

"The more time schools and businesses spend working together, the better prepared students will be for the workplace and the more productive they'll be in their jobs," commented Fred Breithut, president of School-Business Partnerships of Long Island. "The community as a whole benefits."

The schools gain the establishment of cooperative education programs, which oftentimes leads to permanent employment after graduation. They also get help with designing new curricula, tours of company facilities and guest speakers.

The companies wind up with a large pool of qualified people as potential employees. In addition, the companies get to use school facilities for meetings and training programs. Faculty members also offer their expertise to the companies.

Grumman is presently matched with five Long Island school districts: Bethpage, East Islip, Shoreham-Wading River, Riverhead, and South Huntington; and Aviation High School and Andrew Jackson High School in Queens.

"The company chooses schools near Grumman facilities. Some are chosen for their curriculum, as in the case of Aviation High School," said Roseann Smith, Grumman's manager of school programs. "The people at Andrew Jackson asked Grumman for help designing certain engineering curricula."

There are over 50,000 successful industry and education partnerships in the United States. Out of 128 school districts on Long Island, 35 of them participate in the program.■

New Posts

The following Grummanites recently received new assignments:

Aircraft Systems

Bethpage Operations: Walter Blazejewski, foreman, Structural Assembly 002/045; William Knight, foreman, Sub-Assemblies 002/038; John Arcara, foreman, Structural Assembly 002/046; John Rotzman, foreman, Structural Assembly 002/028/029 Nights.

Integrated Logistics Support: Girard W. McKenna, engineering specialist, Mechanical Engineering; George F. Shaw, program manager, A-10 Program; Ronald L. Cardillo, engineering specialist, Equipment Design.

Material Operations: George G. Silvis, assistant manager, Receiving, Warehousing and Raw Material Operations; James A. Triebel, supervisor, Raw Material Operations; Robert VanNoy, supervisor, Receiving and Warehousing; Charles Selock, supervisor, Central Receiving.

Technical Operations: James Cooke, operations project engineer, New Business, F-14 Program; Walter Hilbert, group head, Environmental Control Design; Edward Scicchitano, group head, Power Plant Design; Mary Lehman, group leader, Structural Analysis, F-14A Program.

Buy A Grumman Boat And Pocket A Check

Some ads promise you the world: Insane prices, nobody beats them, they're dealing...

Maybe. But here is a deal that's for real. Grummanites and retirees in the market for a boat can buy a Grumman product under a new program that returns as much as $200 to the buyer.

Go to any Grumman Boat dealer. Shop around. Pick the Grumman boat you want and negotiate the best price you can.

After you buy the boat, send Grumman Boats a copy of the purchase documents and warranty card (with your perm number on the card). You will get a reimbursement check.

The amount you're reimbursed depends on the Grumman boat you buy.

"Our new discount program benefits Grumman people in several ways," says Grumman Boats President Kip Towl. "Service on a boat, or a boat, engine and trailer package, will be provided by your dealer. Freight costs will be less and the boat can be picked up at the dealer, instead of at a Grumman facility."

Grumman boats and canoes have long been known for their toughness and durability. The aluminum canoe has been banged around by some of the roughest water in the world for the last four decades.

But Grumman Boats' sales growth over the past several years has been powered by the new boat models, such as the successful series of pontoon boats. More options and sportier colors have also helped make waves among boat dealers.

In its current sales effort, this Allied Division unit is emphasizing the benefits of aluminum over fiberglass.

Because an aluminum boat is lighter, it can take a smaller motor. That keeps initial and operating costs down. The lighter weight makes the boat easier to tow home. The company's new 22-foot "Big Water" boats are just under the maximum size limit for trailerable vessels, yet are strong enough to take a pounding in heavy seas.

Grumman's aluminum boats are beginning to make inroads into the Long Island market, where fiberglass boats have long ruled the seas. "Today the waters are so crowded, how can you get a mooring, let alone dock space?" says Towl. "Many people would like to have trailerable boats, which makes aluminum very attractive."

If you'd like a Grumman Boats brochure and a list of dealerships in your area, have your site administrator or ES office write: Grumman Boats, Customer Service, 7 South Street, P.O. Box 549, Marathon, New York 13803.■

Simple And Stable. *A great choice for someone who likes to fish is this Split Seat Deluxe boat, which has plenty of deck space so you can walk around its storage seats. It also offers an 18-gallon live well.*

Something For Everyone. *There's no better place to relax than on the deck of a Grumman pontoon boat (above). Or, put some zing into your boating with a Skidaddle 18' inboard/outboard.*

Grab Your Bait — And Rebate

On top of the best price you can negotiate with your dealer, Grumman Boats will send you a check when you buy one of the following boats (rebates are limited to one per Grummanite per year, Big Water boat rebate to be announced):

Model	Rebate
Canoe	$15
Eagle Canoe	$10
Sportboat	$30
Cartoppers	$20
Fisherman	$35
Split Seats	$40
Split Seat Deluxe	$50
Pro Fisherman	$55
Master Fisherman	$90
Ultra (16'&18' x 84" beam)	$125
Ultra I/O	$125
Jon Boat 29" bottom	$10
Jon Boat 37"	$15
Jon Boat 42"	$25
Jon Boat 49"	$30
Scrambler	$25
Ranger	$35
Rogue/Champ	$50
Outlaw/Renegade/Challenger	$75
20' Pontoon	$125
24' Pontoon	$135
28' Pontoon	$150
24' Deluxe Pontoon	$200

Protect Your Computer From The Software Virus

In recent years, there has been a sharp increase in small, powerful, personal computers in the workplace. Grumman has over 2,500 of them.

Guarding against unauthorized access to these computers has become increasingly important as well.

Where once PCs were used for bookkeeping and word processing, they can now be linked to many other PCs to form powerful networks. They can also be hooked up to large computers and gain access to all the information these large systems make available.

Since most of the information stored in mainframes is vital to the operation of the company, guarding against a software intruder can be just as vital.

Unauthorized access comes in many forms. However, one of the most insidious culprits these days is the deliberately planted computer "virus" — software programs that can be secretly placed in a computer to sabotage equipment or to secretly set up illegal activity through communications channels to affect information.

Another malicious computer intruder is the "Trojan Horse." Named after the huge, hollow wooden horse that carried Greek soldiers to the gates of Troy and released the army to attack the city after nightfall, this software looks like normal computer code but gives the computer unauthorized instructions to allow entry into restricted files.

A trapdoor is another type of illegal code that uses entry points in a program to perform unauthorized and usually illegal activities on data.

A computer virus can automatically spread itself between computers, then copy itself and conceal those copies inside other programs. All infected programs then become "contagious," and the virus can pass to other computers without a trace.

But how do these viruses gain access in the first place?

"There are many different ways," says Tom Kelly, vice president—Corporate Information Resource Management. "If someone at a computer hooks up through a modem to any outside information service, for example, that service could transmit a program back with a virus attached to it. Depending on what computer language it's written in, the Grumman operator may never recognize it."

Once the program is stored on the operator's hard disk, it can infect all other programs on the disk. The computer can then infect any other computers it communicates with.

Although Trojan horses and computer viruses are of high concern lately, Grumman is also concerned about protecting PCs from software theft, unauthorized use, and loss of vital data and systems.

About 90 percent of computer crimes, according to the latest surveys, result from authorized people performing unauthorized actions. All Grumman mainframes that store Department of Defense classified and secret information are protected by DoD security systems in addition to extensive Grumman corporate procedures.

"It's the smaller minicomputers and PCs, some of which store proprietary company information that we particularly have to watch out for," says Paul Muzio, director of Special Projects and Systems Integration for the Data Systems Division.

In the past five years, as PCs have been given more and more responsibility, computer companies have been forced to build in better security.

Among these is the audit trail, which keeps a record of all that transpires at a particular workstation. "It will record when the computer gets logged on and off, for example, and what documents are accessed," says Muzio.

In addition, most of the computers now have redundant identification systems. The user has a series of passwords and ID codes to input before access is granted.

If the computer does not have sufficient security features, such as audit trails and user identification processes, there are software programs that can be purchased to provide this protection. One such program is called "Watchdog."

There are also programs available that protect against viruses, detecting and removing them. These programs run on all kinds of machines, including PCs, minis and mainframes.

"However, no security system is 100 percent safe," says Kelly. "The security of Grumman's software ultimately relies on the responsibility of the users."

The Corporate Information Resource Management Department suggests some simple steps for software protection.

Number one on the list: protect your password. "Treat your identification codes like you would your house keys," says Kelly. "Don't leave them around for someone to pick up and later pay a visit with when you're not around."

Never hook up to a mainframe and then walk away. Always log off if you have to leave the computer station.

Do not bring diskettes to and from home. The biggest source of viruses are commercial services, such as entertainment guides or bulletin boards, that you can call up on your home computer.

Always turn your workstation off at the end of the day to clear the computer's memory of any undetected viruses.

If you have to communicate with a system that uses a computer language you are not familiar with, use a separate set of disks. After the communication is complete, turn the system off and start it up again with a new set of disks.

For more information about how to protect your computer system, contact Data Systems Security Specialists Don Stanford or Shelly Wiederman, at (516) 575-3805.

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Paper Recycling Program Picking Up Speed

"How often does the company get a chance to save money without spending a lot of time and energy?" says Al Trebitz of the General Accounting Department in Building 30.

"Everyone's doing it," says Maria Professore of Operations and Administration in Building 35. "And if they're not, we let them know about it."

"I had no idea one person could use as much paper as I do," says Darlene Salamone of Requirements Planning in Building 30.

Grumman's office paper recycling program began Monday, May 9, in Buildings 30 and 35, and Headquarters. So far, it looks like it's going to be a success.

About 40 percent of Grumman's solid waste is paper. The company hopes to sell about 600 tons of bond paper to a recycling firm this year. Normally it would cost about $100,000 just to dump it.

"Although the program is still in its early stages, Grummanites are taking the responsibility quite seriously," says Dean Cassell, Grumman Corporation vice president-Environmental Protection.

Buildings 30, 35, and Headquarters were selected as pilot sites for the program until all the kinks are worked out. The program is then expected to expand to all Grumman facilities on Long Island and then across the country.

"As with any new program, there are always little snags you don't count on," says Mary Ann Pepine, manager of Grumman's General Cleaning Department, which picks up the program's green folders. "But we are working to make the operation run as efficiently as possible."

Paper Pick-up. *Frank Ruland of Grumman's General Cleaning Department collects paper in Building 35 from the green folders used for Grumman's Office Paper Recycling Program. (Photo by Bob Settles)*

One person from the General Cleaning Department is assigned to each of the buildings. They pick up the green folders that people leave on their waste paper baskets. The paper is dumped into a huge bin and then taken to the loading docks where the recycling contractor picks it up.

"I'm shocked," says Ron Ventullo, in charge of pick-up in Building 30. "I never thought so many people would take the time to leave the folders out, but they do. Each night I find at least 10 more.

"I was really surprised to see the people in the Purchasing Department, who use a lot of carbon paper, actually separating it from the usable paper before placing it in the folder," says Ventullo. "They're even folding the calculator tape."

"Some people have so much paper, there are stacks of folders on their baskets," says Frank Ruland, in charge of pick-up in Building 35.

The General Cleaning Department asks that Grummanites leave the folders they want picked up on the garbage pails. This will avoid any problems with papers not meant for the folders being accidentally taken.■

What's Recyclable?

All Grummanites in Buildings 30, 35 and Headquarters have received a special Grumman Office Paper Recycling folder. They are asked to put bond paper — originally destined for the garbage pail — into this legal-size folder. This folder should be placed on top of their garbage pails at the end of the work day. Every night, Facilities people will empty the folder into special bins which will be picked up by a recycling firm.

What can be recycled? All bond paper, office stationery, copier paper, note paper, personal computer paper, and calculator tape.

One important exception: *No classified material can be placed in the folder.* That should be discarded in burn barrels.

Remember that paper clips, staples and rubber bands have to be removed before placing the paper in the green folder.

Of course, there are a number of types of paper that can't be recycled in this program. They include: colored paper, newspapers, magazines, cardboard, coated paper, report covers, carbon paper, envelopes, green computer printout paper, and paper fasteners.

Computer Hardware Survey Under Way

Grumman Data Systems' Information Security Department is conducting a corporate-wide survey of computer facilities.

The survey's purpose is to determine how well Grumman's computer facilities are protected against potential hazards such as fire or flooding. Temporary buildings called PROMS are also included in the survey.

Since November 1987, over 300 surveys have been mailed throughout the company. To date, only about 50 percent of the surveys have been returned. If you received a survey, Information Security asks that you send it in as soon as possible. If you have difficulty answering specific questions, call (516) 575-3805, 575-8360 or 346-9343 for assistance.

In addition, there may be areas that the department has not sent a survey to. If you have computer hardware such as mainframe computers, mini-computers, data terminals (smart or dumb), or personal computers (stand alone or networked), call one of the numbers above and Information Security will send you a survey. If you have from one to three terminals or PCs, just fill out the page relating to hardware.

All surveys should be sent to Information Security, Grumman Data Systems Division, B05-GHQ, 1111 Stewart Ave., Bethpage, N.Y. 11714.■

Readership Survey

We don't want to do all the talking. We'd like to know what you think about the things you see in these pages. Your comments, suggestions and complaints are welcomed. Please take a few minutes and give us your opinions.

Article	Great	Good	Poor	Didn't Read
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Schlegel Interview (P. 3)	☐	☐	☐	☐
Boat Rebates (P. 5)	☐	☐	☐	☐
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GrummanWorld
May 27, 1988

(Photo by Bob Senles)

Master Blaster

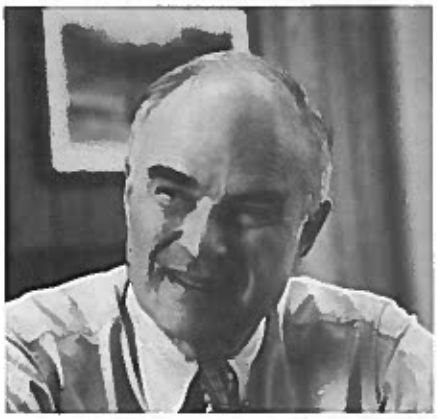
Jim Amentler applies lots of experience and a little artistry as he shot-peens machine parts.

Shot-peening is needed because steel, stainless steel, aluminum or titanium parts sometimes warp after machining or heat treatment.

To bring the part back within tolerance, Amentler first clamps the part to a metal table. Then, he dons a helmet and rubberized suit for protection. Inside a booth he sprays the part with one-sixteenth or one-quarter inch steel shot fired at pressures of 10 to 35 pounds per square inch. A magnetized pickup system keeps stray shot from turning the booth into a skating rink.

The shot applies a smooth, even force to the part. Years of experience help Amentler and the other operators in this Building 3 shop know just where to direct the spray to mold a part — like this aluminum one for the E-2C — into flying form.

A Letter From The Chairman



In his address to shareholders at our annual meeting last month, John O'Brien said that Grumman expects to sign up a billion dollars in new international business in the next two years. It's an ambitious projection, but it should come as no real surprise to anyone who has been following our overseas endeavors.

I have been particularly interested in seeing this side of Grumman develop; the focus of my career in the 10 years before I came to Grumman was in the international petrochemical business. Since the early '70s, Grumman International's efforts have become progressively smoother, more confident — and more successful.

New programs in our own country are few and far between. Even though they carry considerable financial risk, the competition for them is ferocious. Overseas work has created real opportunities for expansion. A study by the Aerospace Industries of America Association points to the increasing "internationalization" of this business. U.S. aerospace exports have grown from $1.7 billion in 1960 to almost $21 billion in 1986. The 1987 numbers aren't in yet, but the projection is about $25 billion.

Grumman's first important foreign sale was the Iranian F-14: that arrangement was made by the U.S. government. Next were the sales of E-2C's to Israel, Japan, Egypt and Singapore. Of course, these were U.S. government decisions as well, but we were steadily becoming more and more involved. Since most of our products have military applications, their overseas sales require government approval — but in recent years, we have been full participants. This is, of course, more satisfying because we know exactly what's going on. But, more importantly, we can do a much better job for the United States and for our overseas customers.

We have also become more flexible. In the past, we sought to market our own products exclusively. We began a new phase when we refurbished another company's aircraft, the A-4, for Malaysia; this paved the way for similar programs, including the Peace Pearl for the People's Republic of China. And we haven't limited our efforts to airplanes: we've sold positions in France's Arianespace program to U.S. customers, shipped Grumman trucks and canoes overseas, and introduced ourselves to many countries through fire engine sales. One exciting new prospect is our role in coordinating the efforts of the United States, Europe, Canada and Japan in NASA's Space Station program.

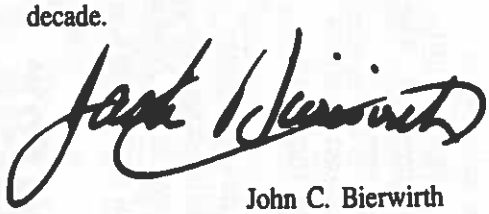
We have always believed that it is wrong to go into an area for a quick profit. Being truly accepted in a country depends on convincing that customer that we have a long-term interest in their well-being, and that we want to work with them for their benefit and our own.

We have established Grumman teams and offices in Singapore, Tokyo, Paris, Cairo, Tel Aviv and Taipei; an office in Beijing will open in a few months. We have shown our willingness to be involved in the economies of our customer countries by investing in them, buying from them and pursuing joint ventures. In Singapore, for instance, we set up a facility for teaching computer aided design and manufacture at Nanyang Technological Institute. This facility was part of the sale of the E-2C — but it underscores our concern for Singapore's technological growth.

The key to all this success is cooperation. Each division as it becomes involved in an overseas project becomes part of a Grumman International team. The essence of good international work is marrying a specific area's culture and economy to the technologies that fit its needs. It's not easy to do — but we are doing it well, and getting better at it all the time.

Undoubtedly, the warm relationships that have developed come from the friendly, open manner of Grumman people. Drivers, engineers, technicians, receptionists — all have shown our international customers that Grummanites are genuinely interested in working with them and learning from them. Over and over again, I get comments on the warm reception that our visitors receive when they come into a Grumman facility.

We have developed our overseas work the way we try to develop all our businesses: with integrity, commitment to quality, and respect for our customers. There's every reason to believe that the the growth rate for international sales that Grumman has sustained for the last few years will continue to climb for at least another decade.



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